MA 1116— VECTOR CALCULUS (3-0)
Syllabus

Text: *Introduction to Vector Analysis*, 7th Edition, Harry F. Davis and Arthur D. Snider (Quant Publishing)

HOURS	TOPIC	SECTION
1-1 Vector Algebra (a review)		1.1—-1.14
1-2 Tensor Notation		1.15
2-4 Vector Functions of a Single Variable		2.1- -2.5
2-6 Scalar and Vector Fields		3.1--3.2
2-8 Curl and Divergence		3.3—3.4
1-9 Del Notation		3.5
1-10 The Laplacian, Vector Identities		3.6, 3.8
1-11 Cylindrical and Spherical Coordinates		3.10
1-12 Orthogonal Curvilinear Coordinates		3.11
2-14 Line Integrals		4.1
2-16 Conservative Fields and Scalar Potentials		4.2—4.4
1-17 Solenoidal Fields and Vector Potentials		4.5
2-19 Surface and Volume Integrals		4.6—4.8
1-20 Introduction to the Divergence and Stokes's Theorem		4.9
1-21 Introduction to Transport Theorems		4.10
1-22 Green's Formulas, Laplace and Poisson Equations		4.13
2-24 The Divergence Theorem		5.1
2-26 Green's and Stokes's Theorems		5.4, 5.5
1-27 Transport Theorems		5.6
2-29 Applications: selected material from the Appendices		Appendices C,D,E
4-33 Review, Exams, and Holidays		